







SL52035261201801TX-1

Date: July 16,2020

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HANGSEN INTERNATIONAL GROUP LIMITED NO.1, JINQI ROAD, FENGGANG TOWN, DONGGUAN CITY, GUANGDONG PROVINCE

THIS REPORT CANCELS AND SUPERSEDES THE TEST REPORT NO. SL52035261201801TX DATE:2020-07-13 ISSUED BY SGS (Shanghai) UPDATED SAMPLE INFORMATION

The following sample(s) was/were submitted and identified on behalf of the client as:

Sample Description : (A)Fold-flat particulate respirator

Style No. : A1

Sample Color : (A)WHITE

Test Performed : Selected test(s) as requested by applicant

Sample Receiving Date : Jun 19, 2020

Testing Period : Jun 22, 2020 - Jul 13, 2020

Test Result(s) : Unless otherwise stated the results shown in this test report refer only to the

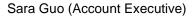
sample(s) tested, for further details, please refer to the following page(s).

Conclusion:

Sample No.	Recommendation Level
(A)	FFP2 NR

Signed for and on behalf of

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd Testing Center





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Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or, email: CN.Doccheck@sgs.com

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Test Result

Personal Protective Equipment - Respiratory Protective Devices- Filtering Half Masks to Protect against Particles- Requirements, Testing, Marking

EN 149:2001+A1:2009

Clause 7.4 Packaging

(EN 149:2001+A1:2009 Clause 8.2)

Test Requirement	Results	Comment
Particle filtering half masks shall be offered for sale packaged in such a way that they are protected against mechanical damage and contamination before use.	Comply	Pass

Clause 7.5 Material

(EN 149:2001+A1:2009, Clause 8.2 & 8.3.1 & 8.3.2)

Test Requirement	Results	Comment
Materials used shall be suitable to withstand handling and wear over the period for which the particle filtering half mask is designed to be used.	Comply	
After undergoing the conditioning described in 8.3.1 none of the particle filtering half masks shall have suffered mechanical failure of the facepiece or straps.	Comply	Pass
When conditioned in accordance with 8.3.1 and 8.3.2 the particle filtering half mask shall not collapse.	Comply	
Any material from the filter media released by the air flow through the filter shall not constitute a hazard or nuisance for the wearer.	Comply	

Clause 7.6 Cleaning and Disinfecting

(EN 149:2001+A1:2009, Clause 8.4 & 8.5 & 8.11)

Test Requirement	Results	Comment
If the particle filtering half mask is designed to be re-usable, the materials used shall withstand the cleaning and disinfecting agents and procedures to be specified by the manufacturer. With reference to 7.9.2, after cleaning and disinfecting the re-usable particle filtering half mask shall satisfy the penetration requirement of the relevant class.	Not applicable (Not designed to be re-usable)	N.A.

Clause 7.7 Practical Performance

(EN 149:2001+A1:2009, Clause 8.4)

Test Requirement	Results	Comment
The particle filtering half mask shall undergo practical performance tests under realistic conditions. These general tests serve the purpose of checking the equipment for imperfections that cannot be determined by the tests described elsewhere in this standard.	No imperfections	Pass



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Test Report SL52035261201801TX-1 Clause 7.8 Finish of Parts

(EN 149:2001+A1:2009, Clause 8.2)

Test Requirement	Results	Comment
Parts of the device likely to come into contact with the wearer shall have no sharp edges or burrs	No sharp edges	Pass

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Clause 7.9.1 Total Inward Leakage

(EN 149:2001+A1:2009, Clause 8.5)

Test Requirement	Results	Comment
The total inward leakage consists of three components: face seal leakage, exhalation value leakage(if exhalation value fitted) and filter penetration. For particle filtering half masks fitted in accordance with the manufacturer's information, at least 46 out of the 50 individual exercise results (i.e. 10 subjects x 5 exercises) for total inward leakage shall be not greater than: 25% for FFP1, 11% for FFP2, 5% for FFP3 and, in addition, at least 8 out of the 10 individual wearer arithmetic means for the total inward leakage shall be not greater than: 22% for FFP1, 8% for FFP2, 2% for FFP3	Detail refer to Appendix 1	Meet FFP1 Meet FFP2

Appendix 1: Summarization of Test Data

Inward Leakage Test Data

Subject	Sample	Condition	Walk(%)	Head	Head	Talk(%)	Walk(%)	Mean(%)
	No.		, ,	Side/side(%)	up/down(%)	, ,	, ,	` ,
Zhou	1	A.R.	7.62	6.71	5.49	5.50	6.71	6.41
Luo	2	A.R.	7.44	8.66	6.92	6.41	6.29	7.14
Lu	3	A.R.	7.32	6.37	5.96	5.05	7.58	6.46
Wang	4	A.R.	4.76	4.12	6.48	4.89	5.24	5.10
Bao	5	A.R.	7.34	6.07	8.17	7.09	7.10	7.15
Ding	6	T.C.	5.78	5.16	6.70	4.57	5.75	5.59
Li	7	T.C.	7.16	8.03	8.17	8.45	6.08	7.58
Chen	8	T.C.	5.96	5.71	5.77	4.83	5.61	5.58
Song	9	T.C.	5.76	6.79	7.51	7.17	6.21	6.69
Ye	10	T.C.	7.77	8.34	6.49	6.58	8.38	7.51

Facial Dimension(mm)

Subject	Face length	Face Width	Face Depth	Mouth Width
Chen	125	150	120	58
Lu	115	132	107	48
Zhou	115	135	106	52
Li	125	130	107	46
Luo	125	136	100	43
Zheng	128	140	112	55
Wang	120	147	103	48
Song	120	140	100	50
Bao	130	134	104	50
Ding	134	150	110	52



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Liu	120	135	117	50
Ye	126	137	105	52

Clause 7.9.2 Penetration of Filter Material

(EN 149:2001+A1:2009, Clause 8.11 & EN 13274-7:2019)

	Test Requirement	Results	Comment	
	of the filter of the particle filte the following table.	ne		
Classifica	Maximum penetration			
tion	Sodium chloride test 95 l/min	Paraffin oil test 95 l/min	Detail refer to	Meet FFP1
	%	%	Appendix 2	Meet FFP2
	max.	max.		
FFP1	20	20		
FFP2	6	6		
FFP3	1	1		

Appendix 2: Summarization of Test Data

Penetration of filter material

Aerosol	Condition	Sample No.	Penetration (%)
		1	0.116
	As received	2	0.125
		3	0.146
		4	0.136
Sodium chloride test	Simulated wearing treatment	5	0.156
	_	6	0.164
	Machaniaal atropath . Toppo agains	7	0.672
	Mechanical strength +Temperature conditioned	8	0.694
		9	0.684
	As received	10	0.264
		11	0.256
		12	0.247
		13	0.236
Paraffin oil test	Simulated wearing treatment	14	0.274
	_	15	0.294
	Mark a size I start with a Tarra and and	16	5.624
	Mechanical strength +Temperature	17	5.378
	conditioned	18	5.673
	Flow conditioning : Single fil	ter: 95.0 L/min	



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SL52035261201801TX-1 **Test Report** Clause 7.10 Compatibility with Skin

(EN 149:2001+A1:2009, Clause 8.4 & 8.5)

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Test Requirement	Results	Comment
Materials that may come into contact with the wearer's skin shall not be known to be likely to cause irritation or any other adverse effect to health.	No irritation or any other adverse effect to health	Pass

Clause 7.11 Flammability

(EN 149:2001+A1:2009, Clause 8.6)

Test Requirement	Results	Comment
The material used shall not present a danger for the wearer and shall not be of highly flammable nature	Detail refer to	Door
When tested, the particle filtering half mask shall not burn or not to continue to burn for more than 5 s after removal from the flame.	Appendix 3	Pass

Appendix 3: Summarization of Test Data

Flammability

<u>r iairiiriabiiity</u>		
Condition	Sample No.	Result
	1	NIL
As received	2	NIL
	3	NIL
Temperature conditioned	4	NIL

Clause 7.12 Carbon Dioxide Content of The Inhalation Air

(EN 149:2001+A1:2009, Clause 8.7)

Test Requirement	Results	Comment
The carbon dioxide content of the inhalation air (dead space) shall not exceed an average of 1,0 % (by volume)	Detail refer to Appendix 4	Pass

Appendix 4: Summarization of Test Data

Carbon Dioxide Content of The Inhalation Air

Condition	Sample No.	Result(%)				
		0.4794				
	1					
As resolved		0.4789	Maan yaluar0 49			
As received	2		Mean value:0.48			
		0.4787				
	3					



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Test Report SL52035261201801TX-1 Clause 7.13 Head Harness

(EN 149:2001+A1:2009, Clause 8.4 & 8.5)

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Test Requirement	Results	Comment
The head harness shall be designed so that the particle filtering half mask can be donned and removed easily.	Comply	
The head harness shall be adjustable or self-adjusting and shall be sufficiently robust to hold the particle filtering half mask firmly in position and be capable of maintaining total inward leakage requirements for the device.	Comply	Pass

Clause 7.14 Field of Vision

(EN 149:2001+A1:2009, Clause 8.4)

Test Requirement	Results	Comment
The field of vision is acceptable if determined so in practical performance tests.	Comply	Pass

Clause 7.15 Exhalation Valve(s)

(EN 149:2001+A1:2009, Clause 8.2 & 8.9.1 & 8.3.4 & 8.8)

Test Requirement	Results	Comment
(a) A particle filtering half mask may have one or more exhalation valve(s), which shall function correctly in all orientations.	Not applicable due to No exhalation valve	
(b) If an exhalation valve is provided it shall be protected against or be resistant to dirt and mechanical damage and may be shrouded or may include any other device that may be necessary for the particle filtering half mask to comply with 7.9.	Not applicable due to No exhalation valve	N.A.
(c) Exhalation valve(s), if fitted, shall continue to operate correctly after a continuous exhalation flow of 300 l/min over a period of 30 s.	Not applicable due to No exhalation valve	
(d) When the exhalation valve housing is attached to the faceblank, it shall withstand axially a tensile force of 10N applied for 10 s.	Not applicable due to No exhalation valve	



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Clause 7.16 Breathing Resistance

(EN 149:2001+A1:2009, Clause 8.9)

Test Requirement					Results	Comment
The penetration of the filter of the particle filtering half mask shall meet the requirements of the following table.						
Classification	Maximu	um permitted resista	ance (mbar)		Detailerterte	Meet FFP1
	Inf	nalation	Exhalation		Detail refer to	Meet FFP2
	30 l/min	95 l/min	160 l/min		Appendix 5	Meet FFP3
FFP1	0.6	2.1	3.0			
FFP2	0.7	2.4	3.0			
FFP3	1.0	3.0	3.0			

Appendix 5: Summarization of Test Data

Breathing resistance (mbar)

	Clove roto/L	/min)	1				2				3						
	Flow rate(I/	min)	Α	В	C	D	Е	Α	В	C	Δ	Е	Α	В	С	D	Е
As received	Inhalation	30	0.3	0.4	0.3	0.4	0.3	0.3	0.4	0.4	0.3	0.3	0.4	0.4	0.4	0.3	0.4
	IIIIaiatioii	95	8.0	1.0	0.9	0.8	0.9	1.0	0.9	0.8	1.0	0.8	0.9	1.0	0.8	1.0	0.9
	Exhalation	160	2.6	2.7	2.6	2.7	2.7	2.6	2.6	2.7	2.7	2.6	2.6	2.7	2.7	2.6	2.7
					4					5			6				
Simulated	Flow rate(I/	/min)	Α	В	С	D	Е	Α	В	С	D	Е	Α	В	С	D	Е
wearing	Inhalation	30	0.3	0.4	0.3	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.3	0.4	0.4	0.3	0.4
treatment	IIIIaiation	95	1.0	1.1	1.0	1.1	1.0	1.1	1.0	0.9	0.9	1.1	1.0	0.9	0.8	1.1	0.9
	Exhalation	160	2.8	2.7	2.6	2.6	2.7	2.8	2.7	2.6	2.7	2.8	2.7	2.6	2.7	2.8	2.7
	5 1 /1	/\			7			8				9					
	Flow rate(I/	min)	Α	В	С	D	Е	Α	В	С	ם	Е	Α	В	С	D	Е
Temperature	Inhalation	30	0.3	0.3	0.4	0.3	0.3	0.4	0.3	0.3	0.3	0.4	0.3	0.2	0.3	0.4	0.4
conditioned	IIIIIaialiOII	95	0.9	0.8	1.0	0.8	0.9	0.9	0.8	0.9	1.0	0.9	1.0	0.9	0.8	0.9	1.0
	Exhalation	160	2.6	2.7	2.6	2.7	2.6	2.7	2.7	2.6	2.7	2.6	2.6	2.7	2.6	2.6	2.7

A: facing directly ahead; B: facing vertically upwards; C: facing vertically downwards; D: lying on the left side; E: lying on the right side



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Clause 7.17 Clogging

(EN 149:2001+A1:2009, Clause 8.9 & 8.10)

	Test Requirement	Results	Comment	
Valved particle for After clogging the FFP1: 4 mbar, For The exhalation flow. Valveless partice After clogging the After clogging the After street of After s	reathing resistance iltering half masks: ne inhalation resistances shall not FP2: 5 mbar, FFP3: 7 mbar at 95 resistance shall not exceed 3 mb le filtering half masks: ne inhalation and exhalation resis FFP2: 4 mbar, FFP3: 5 mbar at 95	Optional for single shift device only	N.A.	
All types (valve	d and valveless) of particle filter grequirement shall also meet the Maximum penetration Sodium chloride test 95 l/min	Optional for single shift device only	N.A.	
FFP1	max. 20	% max. 20		
FFP2 FFP3	6 1	6		

Clause 7.18 Demountable Parts

(EN 149:2001+A1:2009, Clause 8.2)

Test Requirement	Results	Comment
All demountable parts (if fitted) shall be readily connected and secured,	No demountable	N.A.
where possible by hand	parts	IN.A.

Test	Uncertainty
Total inward leakage	3.4%
Penetration of filter material	4.8%
Carbon dioxide content of the inhalation air	3.9%
Breathing resistance (30L/min)	5.9%
Breathing resistance (95L/min)	4.9%
Breathing resistance (160L/min)	4.3%



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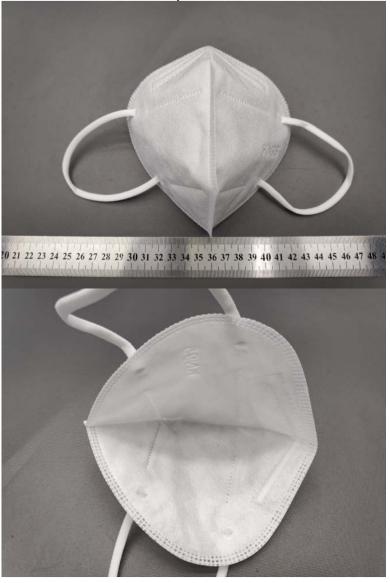


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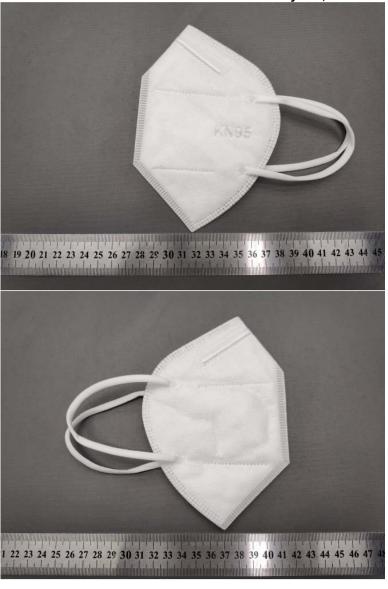
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